

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MASSACHUSETTS

BRAUN GMBH,

Plaintiff,

v.

RAYOVAC CORPORATION,

Defendant.

Civil Action No. 03-1248-WGY

SECOND EXPERT REPORT OF SAMUEL R. PHILLIPS, PE

1. I am an independent consulting engineer. I have been retained as an expert in this case by Rayovac Corporation ("Rayovac") to opine as to whether certain of Braun GmbH's patents have been infringed by any Rayovac products. Specifically, I have been asked to review U.S. Patent Nos. 5,649,556 ("the '556 patent") and 5,711,328 ("the '328 patent") (collectively "the patents in suit") and to compare the asserted claims of the patents in suit to Rayovac's accused products..

I. BACKGROUND AND QUALIFICATIONS

2. My background and qualifications are attached as Tab 1.
3. I received the degrees of Bachelor of Science in Engineering and Master of Science in Engineering from the California Institute of Technology ("Caltech").

EXHIBIT N

4. My industry experience pertinent to this litigation is presented at Paragraph 4 of my First Expert Report, and I incorporate that presentation here.
5. Since 1985, I have been an independent consulting engineer. During that time, I have used my education and experience to assist over 120 clients on a wide variety of topics.
6. I have provided testimony in other matters over the past 4 years. These matters are listed at Tab 1.
7. My compensation is \$425.00/hour through FTI/Techlicon.

II. SCOPE OF STUDY AND OPINION

A. Documents And Information Considered In Forming Opinions

8. The following opinions and analyses are based upon a review of the patents in suit and the file histories for the patents in suit.
9. A list of the information I considered in forming the opinions in this report is attached as Tab 2. Exhibits cited here that were not cited and attached to my First Expert Report of May 23, 2005 are attached following Tab 3.

B. Exhibits To Be Used As A Summary Or Support For The Opinions

10. At trial, I expect to rely upon materials and documents produced in this litigation and various other documents that the parties have exchanged, such as interrogatory responses. I also may rely upon visual aids and demonstrative exhibits that I may prepare or have prepared including, by way of example, figures and excerpts from the patents in suit and/or prior art patents, claim charts, deposition testimony, diagrams and other graphical presentations describing the technology relevant to the patents in

B. Level of Ordinary Skill in the Art

22. I incorporate by reference my discussion of the level of ordinary skill in the art presented at Paragraphs 31-40 of my First Expert Report.

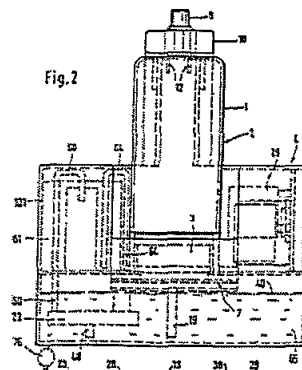
IV. DETAILED CONCLUSIONS FOR THE PATENTS IN SUIT

A. NON-INFRINGEMENT

23. I understand that the literal infringement analysis is a two-step process. I understand that the first step involves the Court providing instruction as to the meaning of claim limitations disputed by the parties, and that this process is called "claim construction." I have reviewed the briefs submitted by the parties regarding claim construction and the transcript of the "Markman Hearing." I understand that these documents reflect the process by which the Court arrived at tentative claim constructions for several claim limitations discussed below.
24. I also understand that the second step involves comparing the accused product or process to the claim limitations as construed by the Court. I further understand that, in order to infringe an asserted patent claim literally, an accused product or process must meet each and every element of the asserted claim.
25. I finally understand that, even if a patent claim is not infringed literally, the patent claim may still be infringed under the "doctrine of equivalents" if the only differences between the element or elements of a patent claim and an accused device are insubstantial. In his expert report, Dr. Nayfeh has not asserted that any asserted claim of the patents in suit has been infringed by Rayovac under the doctrine of equivalents. To the extent that

29. Regardless of whether the Court modifies its tentative claim construction, I disagree with Dr. Nayfeh's opinion as to what constitutes the "cradle structure" in Rayovac's accused products.
30. As discussed above, in Rayovac's accused products, cleaning fluid is injected into the hair pocket. Specifically, in the R-9500 product, the shaver has three openings for injection of fluid. (Ex. 18, Chasen Dep., at 90.) In the R-5500/5700 product, the shaver has four openings for injection of cleaning fluid. (Ex. 18, Chasen Dep., at 90.) I also observed that the WDF-7000CS shaver has two openings for injection of the cleaning fluid. For all of the cleaning devices, the exterior of the manifold ends in injection nozzles.
31. As also described above, each of Rayovac's cleaning systems has a basin that channels fluid into the filter. The men's and women's foil products differ from the rotary product by having spring-loaded baskets for positioning the shaver.
32. Referring to the figures attached to Dr. Nayfeh's report, Dr. Nayfeh opines that the manifold "3a" (and its ports 3b) and what he calls the "supporting surfaces 3c" constitute the "cradle structure." (Nayfeh Report, at 8.)
33. Assuming the Court's tentative claim construction controls, in all of Rayovac's accused products, neither the manifold or its ports receive or provide any support for the shaver. Rather, it is the exterior surfaces of the injection nozzles and the "supporting surfaces 3c" that support the shaver. Moreover, the "supporting surfaces 3c" neither receive nor retain

36. I understand that the Court has construed the element “a cleaning fluid container separate from the cradle structure for holding a cleaning fluid” to mean “a separate cleaning fluid container that is a removable cartridge which holds cleaning fluid.” It is my opinion that the Court’s construction of the element is correct. The ‘556 patent specification states that the invention of the ‘556 patent is a removable and replaceable cleaning fluid container with an integrated filter. (Ex. 13, ‘556 pat., at col. 1, ll. 63-66.) It is my opinion that a removable and replaceable cleaning-fluid container is a cartridge. I have also reviewed Dr. Pahl’s deposition testimony in which he provided his understanding that the “cleaning fluid container” referred to in the claims is a removable cartridge. (Ex. 14, Pahl Dep., at 87-88, 107-08.)
37. I further understand that the Court stated that it did not intend its construction to cover the “collecting reservoir 65” illustrated in Figure 2 of the ‘556 patent. Figure 2 of the ‘556 patent is reproduced immediately below.



38. I disagree with Dr. Nayfeh that Rayovac's accused products meet the claim element, as properly construed by the Court. As discussed above, in Rayovac's accused products, cleaning fluid is poured from a bottle into a lower reservoir. Pouring fluid into a non-replaceable reservoir is very different from a removable cartridge that holds cleaning fluid, as described in the patents in suit and actually implemented in Braun's products. At best, the reservoir in Rayovac's accused products functions like the "collecting reservoir 65" in Figure 2 of the '556 patent.

39. An example that the ordinary artisan and lay people alike would understand is a gun. It is well known that placing a cartridge in a gun is quite different than manually loading a ball and powder into the gun. The same is true of Rayovac's accused devices.

40. It is thus my opinion that Rayovac's accused products do not meet this element.

c. **"a fluid feed mechanism which feeds the cleaning fluid after it passes through the filter to the cradle structure during cleaning"**

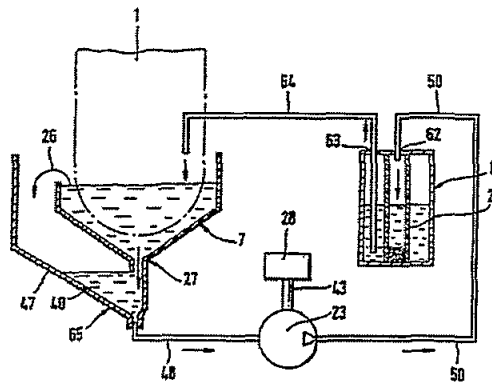
41. It is my opinion that Rayovac's accused products do not meet this element for two reasons. First, the order of the fluid circuit in Rayovac's accused products does not meet the claim element. Second, in Rayovac's accused products, cleaning fluid is not fed to anything constituting a "cradle structure."

42. I understand that the parties have agreed that the claim element "a fluid feed mechanism which feeds the cleaning fluid after it passes through the filter to the cradle structure during cleaning" requires that "cleaning fluid

has to go from the pump to the filter and then to the cradle.” (Ex. 34, Markman Hearing Transcript, at 40.) I have also reviewed Braun’s Markman Reply Brief which states: “Indeed, it is clear from the claim language that the cleaning fluid is feed [sic] first to the filter.” (Ex. 35, Braun Markman Reply Brief, at 30.)

43. I agree that the claim language requires a sequence of fluid flow within the fluid circuit. Figure 6 of the ‘556 patent “shows schematically the fluid circuit” of the alleged invention of the ‘556 patent. (Ex. 13, ‘556 pat., at col. 7, l. 52.) In that fluid circuit, fluid flows from the “pump 23” to the “filter 24” and then to the “cradle 7.” Reproduced immediately below is Figure 6 of the ‘556 patent.

Fig. 6



44. I have also reviewed the testimony of Mr. Braun and Dr. Pahl. Consistently, Mr. Braun testified that the cleaning device of the ‘556 patent was specifically designed such that the filter would be on the pressure side of the pump in the fluid circuit, as in Figure 6 of the ‘556

patent. (Ex. 16, Braun Dep., at 84.) Likewise, Dr. Pahl testified that he considered it to be bad engineering to place the filter anywhere other than on the pressure side of the pump in his cleaning device. (Ex. 14, Pahl Dep., at 114-15.) It was not until Mr. Hoesser came to work at Braun in July 1995 that the filter was relocated to overcome design flaws in the Braun/Pahl fluid circuit. (Ex. 17, Hoesser Dep., at 107-08.) The testimony of Mr. Braun and Dr. Pahl supports my opinion that the agreed construction of the parties is correct.

45. In his report, Dr. Nayfeh states in a footnote: "Consistent with the claim language, I interpret this to mean that the claim requires that the fluid be fed to the cradle structure after the cleaning fluid passes through the filter. The particular order of fluid flow is not limited by the claim." The claim language and its agreed construction "from the pump to the filter and then to the cradle" denotes sequence. That would be clear to one of ordinary skill in the art as a matter of simple grammar. Indeed, Braun itself argued that it was clear that fluid was "first" fed to the filter.
46. Based upon the construction by the Court agreed to by the parties, it is my opinion that Rayovac's accused products do not meet the element. In particular, as recognized by Dr. Nayfeh, the filter in Rayovac's accused products is located underneath the basin. Fluid drains through the filter by the force of gravity.
47. Moreover, in Rayovac's accused products, cleaning fluid is not "fed" to anything constituting a "cradle structure." In Rayovac's accused products,

no fluid is ever “fed” to the “supporting surfaces 3c” at all. Rather, feeding of cleaning fluid occurs only when it is injected into the hair pocket. For reasons presented above, this backflushing process is very different from the bath of the cleaning device in the patents in suit. The injected fluid then simply drains via the force of gravity into the basin where it is channeled into the filter. *In my opinion*, the injection and drainage of the fluid into and out of the shaving head does not constitute the “feeding” of fluid to a “cradle structure.”

48. A simple example is washing a car with a garden hose. Water is, of course, sprayed on the car to wash off soap. By the force of gravity, the water eventually ends up on the driveway. Neither one of ordinary skill in the art nor a lay person would say that the water had been “fed” to the driveway. For similar reasons, it is my opinion that Rayovac’s accused products do not meet the claim element.

d. “said container and filter being separable from the cradle structure as a unit”

49. I understand that the Court has tentatively construed the element “said container and filter being separable from the cradle structure as a unit” to mean “the container and filter are integrally formed or assembled as a unit, such unit being removable from the cleaning device.” I further understand that “said container” refers to the removable cartridge discussed above. It is my opinion that the Court’s claim construction is correct, and I incorporate by reference my opinion that none of Rayovac’s accused products include a removable cartridge. It is also my opinion that

Rayovac's accused products do not meet the element, as properly construed by the Court.

50. First, in Rayovac's accused products, even if the reservoir were considered a cartridge, the filter and reservoir are not integrally formed.
51. Second, in Rayovac's accused products, there is no "cleaning device" without the lower reservoir. As shown in the third picture behind Tab B of Dr. Nayfeh's report, without the lower reservoir, there is only an unwieldy upper part with an exposed pump and legs. That upper part would not be regarded as a "cleaning device" by either one of ordinary skill in the art or a lay person.
52. Unlike Braun's commercial products in which the cleaning device exists separately from the removable and replaceable cleaning fluid cartridge, the only part of the Rayovac accused products that can be removed from the cleaning device is the filter. That fact is well illustrated insofar as a consumer can only purchase replacement filters (along with bottles of cleaning fluid) from Rayovac. (Ex. 36, Schoepp Dep., at 176.)
53. An analogy to the invention that Braun claimed is the ink-jet printer, a device which remains a printer after the removal of its cartridge. In comparison, without the lower reservoir in Rayovac's accused products, there is no cleaning device. Simply, the lower reservoir is an essential element of the "cleaning device" that provides physical support and the cosmetic appearance. It is therefore my opinion that Rayovac's accused products do not meet the element.

CLAIM 2

54. I understand that the Court has tentatively construed the element “the cleaning fluid container is comprised of two chambers, one chamber serving to hold the cleaning fluid, the other chamber being configured as a filter” to mean “the cleaning fluid container consists of two enclosed chambers. One chamber holds cleaning fluid, the other chamber is a filter.” It is my opinion that the Court’s claim construction is correct.
55. While I understand that Braun had at one time asserted this claim against Rayovac, I see no opinion from Dr. Nayfeh that claim 2 reads on Rayovac’s accused products. It is my opinion that Rayovac’s accused products do not meet claim 2.
56. Simply, in Rayovac’s accused products, the filter suspended in the lower reservoir is not an enclosed chamber. Rather, the filter is essentially an open bag that traps debris. From my review of the Markman Hearing transcript, I understand that Braun’s counsel stated that Rayovac’s accused products do not meet claim 2 as construed by the Court. (Ex. 34, Markman Hearing Transcript, at 42-43.) I agree with the statement of Braun’s counsel.

CLAIM 6

57. Claim 6 states: “A cleaning device as claimed in claim 1, wherein the cleaning fluid container contains ports through which cleaning fluid passes in and out of the cleaning fluid container.” I understand that this element was not construed by the Court.

58. Referring to Figure 1d of his report, Dr. Nayfeh concludes that the items labeled 13 and 15 on the picture are “ports” contained by the cleaning fluid container. (Nayfeh Report, at 9.) I disagree with Dr. Nayfeh for several reasons.
59. First, Dr. Nayfeh appears to assume that all openings are ports. It is true that all ports are openings, but one of ordinary skill in the art would understand that the converse is not true.
60. Second, item 13, the entrance to the filter, is not a port. Item 13 operates as the rim of a sink, and one of ordinary skill in the art would understand the rim of a sink is not a “port.” In all events, as accurately labeled by Dr. Nayfeh in Figure 1d, item 13 is part of the filter. It is not contained by the lower reservoir that Dr. Nayfeh calls the “cleaning fluid container.” It is therefore my opinion that item 13 does not meet the claim element.
61. Third, item 15 on Dr. Nayfeh’s Figure 1d is a clearance hole to allow the pump access to the liquid in the lower reservoir. Cleaning fluid neither passes in or out of the clearance hole. While the pump in Rayovac’s accused products has a suction port, that structure is not contained by the lower reservoir that Dr. Nayfeh calls the “cleaning fluid container.” It is therefore my opinion that item 15 likewise does not meet the claim element.

CLAIM 18

62. Claim 18 of the ‘556 patent states: “A cleaning device as claimed in claim 1, wherein the cradle structure is open towards atmosphere and is supplied

with cleaning fluid from the cleaning fluid container by means of the fluid feed mechanism.” I understand that, in order to infringe a dependent claim, all limitations of the independent claim must be met by the accused device.

63. Claim 18 of the ‘556 patent depends from claim 1. As set forth above, it is my opinion that claim 1 of the ‘556 patent has not been infringed by Rayovac. It is thus also my opinion that claim 18 of the ‘556 patent has not been infringed by Rayovac.

THE ‘328 PATENT

64. It is my opinion that Rayovac has not infringed any asserted claim of the ‘328 patent.

CLAIM 11

- a. **“a cradle structure adapted to receive a shaving head of a shaving apparatus”**

65. I understand that the Court has tentatively construed the element “a cradle structure adapted to receive a shaving head of a shaving apparatus” to mean “a structure adapted to support or receive a shaving head of a shaving apparatus and able to receive or retain fluid or both.” I further understand that the Court’s tentative construction is identical to the tentative construction for the similar element in the ‘556 patent.
66. As set forth at Paragraphs 26-35, I thus incorporate by reference my discussion of my opinion that the Court’s tentative claim construction

should be modified and my discussion of the limitation, as construed by the Court, and opinion that Rayovac's accused products do not infringe.

b. "a feed device for feeding cleaning fluid to said cradle structure"

67. I understand that the Court has construed the element "a feed device for feeding cleaning fluid to said cradle structure" to mean "a mechanism that feeds cleaning fluid from the cleaning fluid container to the cradle structure."
68. Unlike the '556 patent, this claim element does not require that cleaning fluid be fed from the pump to the filter and then to the cradle. However, it still does require that the feed device "feed" cleaning fluid to the "cradle structure."
69. For reasons set forth at paragraphs 41-48, in Rayovac's accused products, cleaning fluid is not "fed" to the "supporting structures 3c."
70. In Rayovac's accused products, no fluid is ever "fed" to the "supporting surfaces 3c" at all. Rather, feeding of cleaning fluid occurs only when it is injected into the hair pocket. For reasons presented above, this backflushing process is very different from the bath of the cleaning device in the patents in suit. As discussed above, the injected fluid then simply drains via the force of gravity into the basin where it is channeled into the filter.

CLAIM 12

71. Claim 12 of the '328 patent states: "A device as claimed in claim 11, wherein the drying device comprises an impeller." I understand that, in

order to infringe a dependent claim, all limitations of the independent claim must be met by the accused device.

72. Claim 12 of the '328 patent depends from claim 11. As set forth above, it is my opinion that claim 11 of the '328 patent has not been infringed by Rayovac. It is thus also my opinion that claim 12 of the '328 patent has not been infringed by Rayovac.

CLAIM 14

73. For claim 14 of the '328 patent, the limitations "a cradle structure adapted to receive a shaving head of a shaving apparatus" and "a feed device for feeding cleaning fluid to said cradle structure" are identical to claim 11 of the '328 patent. I thus incorporate by reference my discussion and opinions that Rayovac's accused products do not infringe for those limitations set forth at Paragraphs 65-70. I likewise incorporate by reference my opinion that the Court's tentative construction of the "cradle structure" limitation should be modified.

c. "said cradle structure being permanently open to atmosphere"

74. I understand that the Court has construed the element "said cradle structure being permanently open to atmosphere" to mean that the "cradle structure" is permanently open to the air.
75. Assuming that Dr. Nayfeh were correct that the manifold and its ports in Rayovac's accused products are part of the "cradle structure," it is my opinion that Rayovac's accused products do not meet the element above. When a shaver has been placed in Rayovac's cleaning device, the

manifold and its ports are not permanently open to the air. Rather, they are open to the interior of the shaving head and filled with fluid during the cleaning of the shaver. Thus, the manifold and its ports are not permanently open to the air.

76. Dr. Nayfeh also opines that the “supporting surfaces 3c” are part of the “cradle structure.” Assuming that were true, the “supporting surfaces 3c” are not permanently open to the air. Rather, during use the “supporting surfaces 3c” are closed to air by contact with the shaver.
77. It is thus my opinion that Claim 14 does not read on Rayovac’s accused products.

CLAIM 18

78. For claim 18 of the ‘328 patent, the limitations “a cradle structure adapted to receive a shaving head of a shaving apparatus” and “a feed device for feeding cleaning fluid to said cradle structure” are identical to claim 11 of the ‘328 patent. I thus incorporate by reference my discussion and opinions that Rayovac’s accused products do not infringe for those limitations set forth at Paragraphs 65-70. I likewise incorporate by reference my opinion that the Court’s tentative construction of the “cradle structure” limitation should be modified.

B. ACCEPTABLE NON-INFRINGEMENT SUBSTITUTES

79. I understand that in order to obtain lost profits as damages a patentee must prove the absence of acceptable non-infringing substitutes. I further understand that an acceptable non-infringing substitute need not be on the

market if the non-infringing substitute would have been readily available during the period of infringement. I also understand that a non-infringing substitute is readily available if an alleged infringer has all of the necessary equipment, know-how, and experience to make the non-infringing substitute.

80. Assuming that all of the opinions of Dr. Nayfeh are correct, I have thus analyzed whether there are acceptable non-infringing substitutes for the asserted patent claims.

'556 AND '328 PATENTS

81. The patents in suit are both limited to cleaning systems that use a liquid for cleaning. The '328 patent, in fact, explicitly distinguishes the French '111 patent insofar as that cleaning system used a gas for cleaning. (Ex. 15, '328 pat., at col. 1, ll. 59-67.) I also have reviewed Braun's Markman Reply Brief, (Ex. 35), where it acknowledges that the '328 patent cannot cover gas cleaning systems.
82. I have reviewed numerous Rayovac documents located at the "Bates Ranges" R010572 - R010952. (Ex. 37) These documents show that Rayovac -- more specifically James Chasen -- has developed two gas cleaning systems resembling Rayovac's current liquid cleaning system. The first gas cleaning system employs a compressor to blow air into the hair pocket and then with the dirt and hair out into a filter. (Ex. 37. R010934-38.) The second gas cleaning system employs CO₂ cartridges to force CO₂ into the interior of the shaving head, also blowing the dirt out

into a filter. (Ex. 37; R010599; R010791-801.) Based upon my review of the documents and discussions I have had with Mr. Chasen, both of his gas cleaning systems have proven to be effective in cleaning dirty shaving heads.

83. It is thus my opinion that the two gas cleaning systems developed by Mr. Chasen are acceptable non-infringing substitutes for both of the patents in suit. While Mr. Chasen's systems are not on the market, the mechanical design for both systems is complete. In the case of Rayovac's liquid cleaning system, for the foil product, Rayovac was able to introduce this product in a matter of months after the design was complete. (Ex. 18, Chasen Dep., at 73-74.) Rayovac thus has the ability and know-how to bring a completed design to market quickly.

THE '556 PATENT

Claims 1, 2, 6 and 18

84. As discussed above, the last element of the '556 patent requires that "said container and filter being separable from the cradle structure as a unit." The Court construed this element to mean that "the container and filter are integrally formed or assembled as a unit, such unit being removable from the cleaning device."
85. Referring to Figures 1b, 2b, and 3b of his report, Dr. Nayfeh opines that "the filter 12 and container 5 are assembled as a unit in that filter 12 is assembled to container 5." (Nayfeh Report, at 9.) Dr. Nayfeh thus relies

upon the fact that the filter in Rayovac's accused devices rests by the forces of gravity and friction upon the lower reservoir.

86. Assuming that Dr. Nayfeh were correct that Rayovac has infringed claim 1 of the '556 patent (but he is not), Rayovac would only need to slightly modify its existing cleaning system to avoid infringement of the '556 patent. Rather than have the filter rest on the lower reservoir, Rayovac could instead removably latch the filter to the bottom of the what Dr. Nayfeh calls the "housing 2." The "housing 2" (now attached to the filter) would still be separable from the lower reservoir. To allow consumer replacement of the filter, there could be buttons to release the latches on the filter. Following detachment of a spent filter, a consumer would simply insert the new filter, much as is done with Rayovac's current products.
87. The non-infringing substitute described immediately above is readily available to Rayovac. Rayovac would only need to modify its existing design slightly, and it has the engineering resources to do so. The modification would also require very little additional materials. It is thus my opinion that there is another acceptable non-infringing alternative to all asserted claims of the '556 patent.

THE '328 PATENT

Claim 11

88. Claim 11 of the '328 patent requires a "drying device." To the extent that Dr. Nayfeh argues that the drain and siphon of the McKiney and Maatz References presented in my First Expert Report are not "drying devices," there is an acceptable non-infringing alternative to claim 11 of the '328 patent.
89. More specifically, I have reviewed the testimony of Mr. Juergen Hoeser. Mr. Hoeser testified that Braun currently sells a liquid cleaning system in which the shaver is dried passively after the bath is drained from Braun's "cradle structure." (Ex. 17, Hoeser Dep., at 112.) By passive drying, I understand Mr. Hoeser to mean air drying. (Ex. 17, Hoeser Dep., at 112.)
90. Assuming that Dr. Nayfeh were correct that Rayovac has infringed claim 11 of the '328 patent (but he is not), there is an acceptable non-infringing alternative available to Rayovac. Simply, like the commercial product that Braun has on the market, it is my opinion that Rayovac could remove its fan and sell a cleaning system that employs air drying.

Claim 12

91. Claim 12 of the '328 patent states: "A device as claimed in claim 11, wherein the drying device comprises an impeller." I understand that the Court has construed the term "impeller" to mean "a rotating device or member of a turbine, blower, fan, axial or centrifugal pump."

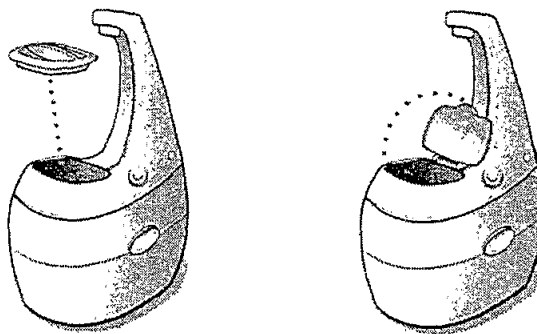
92. Claim 13 of the '328 patent further states: "A device as claimed in claim 12, wherein the drying device further comprises a heater." Because claim 13 depends from claim 12, Braun has no claim in the '328 patent that specifically identifies a heater alone as the claimed "drying device."
93. Thus, to the extent that I am at least correct in my opinion that claim 11 of the '328 patent is anticipated and/or obvious, Rayovac possesses an acceptable non-infringing alternative to claim 12 of the '328 patent. More specifically, Rayovac could redesign its existing liquid cleaning system to use solely a heater for drying.
94. More specifically, I have reviewed the testimony of Mr. Juergen Hoeser. In addition to the passive drying product, Mr. Hoeser testified that Braun currently sells a liquid cleaning system in which the shaver is dried by induction heating after the bath is drained from Braun's "cradle structure." (Ex. 17, Hoeser Dep., at 112.)
95. Assuming that Dr. Nayfeh were correct that Rayovac has infringed claim 12 of the '328 patent (but he is not), there is an acceptable non-infringing alternative available to Rayovac. Simply, like the commercial product that Braun has on the market, it is my opinion that Rayovac could remove its fan and sell a cleaning system that employs induction heating.

Claim 14

96. As discussed above, claim 14 of the '328 patent requires "said cradle structure being permanently open to the atmosphere." As also discussed

above, Dr. Nayfeh concludes that the “manifold 3a with ports 3b” and “supporting structures 3c” constitute the claimed “cradle structure.”

97. Assuming that Dr. Nayfeh were correct that Rayovac has infringed claim 14 of the '328 patent (but he is not), there is an acceptable non-infringing substitute available to Rayovac. More specifically, Rayovac could slightly modify the existing design of its liquid cleaning system to avoid infringement of claim 14.
98. To do so, for periods where the shaver was not being cleaned or charged, Rayovac could incorporate a plastic cover on the top of the opening in its cleaning device. Rayovac might do so to minimize (1) the evaporation of cleaning fluid in the lower reservoir and (2) the likelihood of cleaning fluid spillage. Rayovac could accomplish this with (1) a fully removable plastic cover or (2) a hinged plastic cover comparable to a toilet seat. Pictorial representations of these acceptable non-infringing substitutes are reproduced immediately below.



99. The non-infringing substitutes shown immediately above are readily available to Rayovac. Rayovac would only need to modify its existing

design slightly, and it has the engineering resources to do so. The modification would also require very little additional materials. It is thus my opinion that there is another acceptable non-infringing alternative to all asserted claims of the '556 patent.

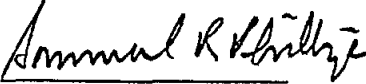
Claim 18

100. Claim 18 of the '328 patent requires "a bracket for insertion of the shaving apparatus therein." I understand the Court has construed the term "bracket" to mean "a bracket or projecting support."
101. Referring to Figures 1a, 2b, and 3a of his expert report, Dr. Nayfeh opines that "a vertically extending structure 10 and an overhanging projection 11 into which the electric shaver 1 is inserted" constitute a bracket as claimed. Assuming that Dr. Nayfeh were correct that Rayovac has infringed claim 18 of the '328 patent (but he is not), there is an acceptable non-infringing substitute available to Rayovac.
102. More specifically, I have reviewed the testimony of Mr. Juergen Hoeser. In Braun's first generation liquid cleaning system, the cleaning system included a bracket that Braun internally classified as "a dome." (Ex. 17, Hoeser Dep., at 11.) For both the passive drying product and the induction heater product, Mr. Hoeser testified further that Braun eliminated the dome. (Ex. 17, Hoeser Dep., at 17.) Braun did so by increasing the depth of what it calls the "cradle structure." (Ex. 17, Hoeser Dep., at 11.)
103. Assuming that Dr. Nayfeh were correct that Rayovac has infringed claim 18 of the '328 patent (but he is not), there is an acceptable non-infringing

alternative available to Rayovac. Simply, like the commercial product that Braun has on the market, it is my opinion that Rayovac could increase the depth of its "cradle" and eliminate the "extending structure 10 and overhanging projection 11."

The opinions in this report are rendered on the basis of a reasonable degree of engineering certainty and are subject to modification and amendment as new information becomes available.

Dated: June 13, 2005


Samuel R. Phillips, PE